

Trig - R

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Groups

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964 Items

Ready

28^{skull} days until June

TRIG

6

7

50 trig questions for HW

§ 5

§ 4

§ 9

10/122

Microsoft PowerPoint

rtcut to wo.exe

ot.exe

4.03

gebra

MART book 10

T Board tools

Online

5.1/1-53 for homework count by 4s

the problem of n^{th} roots

An n^{th} root of a number a
is a solⁿ to:

$$x^n = a$$

$$a=4, n=2 : x^2=4 \quad (2, -2)$$

$$a=-8, n=3 : x^3=-8, -2$$

$$a=625, n=4 : x^4=625, \pm 5$$

$$a=243, n=5 : x^5=243$$

$$a=64, n=6 : x^6=64, \pm 2$$

5 MATH-5 (ex3)

Important feature

n	
even	2 possible n^{th} REAL roots
odd	1 real root

2^{nd} roots of 5:

exact: $+\sqrt{5}, -\sqrt{5}$

approx: ± 2.236

find the fourth root of 2401

$$4 \text{ (MATH 5)} 2401 = 7$$

(OR)

$$2401 \wedge (1 \div 4)$$

Important feature

(positive) n^{th} roots are equivalent to
exponent $\left(\frac{1}{n}\right)$

Laws of Exponents

$$a^{-m} = \frac{1}{a^m}$$

$$2^{-3} = \frac{1}{2^3}$$

$$\frac{1}{5^3} = 5^{-3}$$

$$\frac{1}{7^4} = 7^{-4}$$

$$\frac{1}{8}$$

$$\frac{a^m}{a^n} = a^{m-n}$$

$$\frac{2^7}{2^5} = 2^{7-5} = 2^2 = 4$$

$$\begin{aligned} x^7 + x^5 &= x^3 \left(\frac{x^7}{x^3} + \frac{x^5}{x^3} \right) \\ &= x^3 (x^4 + x^2) \end{aligned}$$

$$\frac{\cancel{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}}{\cancel{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}}$$

$$a^m \cdot a^n = a^{(m+n)}$$

$$2^3 \cdot (2^2)^5$$

$$2^3 \cdot 2^{10}$$

$$2^{13}$$

$$2^3 \cdot 4^5 =$$

$$(\sqrt{4})^3 \cdot 4^5$$

$$(4^{\frac{1}{2}})^3 \cdot 4^5 = 4^{\frac{3}{2}} \cdot 4^5$$

$$4^{\frac{13}{2}}$$

$$(a^m)^n = a^{(m \cdot n)}$$

$$(64)^{\frac{7}{3}} =$$

$$\sqrt[3]{(64)^7}$$

$$(\sqrt[3]{64})^7$$

$$(4)^7 = 2^{14}$$

$$2^{14} = 2^4 \cdot 2^{10}$$

$$= 16 \cdot 1024 =$$

$$16 \cdot 1025 - 16$$

$$16 \cdot 1000 + 16 \cdot 25 - 16$$

$$16 \cdot 1000 + \frac{16 \cdot 100}{4} - 16$$

$$16000 + 400 - 16$$

$$(16384)$$

rationalize denominator

$$\frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$\frac{2}{3+\sqrt{7}} = \frac{2}{(3+\sqrt{7})} \cdot \frac{(3-\sqrt{7})}{(3-\sqrt{7})} = \frac{2(3-\sqrt{7})}{9-3\sqrt{7}+3\sqrt{7}-7}$$

$\sin(x) = \frac{2}{3+\sqrt{7}}$
 $x = 20.747^\circ$

$$\frac{2}{(3+\sqrt{7})} \cdot \frac{\sqrt{7}}{\sqrt{7}} = \frac{2\sqrt{7}}{3\sqrt{7}+7} = \frac{2(3-\sqrt{7})}{2} = 3-\sqrt{7}$$

surd
 $\sqrt{7}$

rationalize numerator

$$\frac{(1-\sqrt{2})}{3} \cdot \frac{(1+\sqrt{2})}{(1+\sqrt{2})} = \frac{1+\sqrt{2}-\sqrt{2}-2}{3(1+\sqrt{2})} = \frac{-1}{3(1+\sqrt{2})}$$

